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THE JOURNAL OF PHILOSOPHY

THE INTELLECTUAL SIGNIFICANCE OF THE GRASPING REFLEX

IT is a charge commonly made against the behaviorists that they commit the fallacy of over-simplification, not only when they state their fundamental theories of mind, but also while they attempt to account for complex intellectual and emotional phenomena. To be sure, such a criticism serves more often to reveal the bias of the critic than to show the accused how they might learn from their mistakes, but this is perhaps because the critic has more confidence in his ability to warn than in his skill as a teacher and guide. This same accusation was made in time past against every thinker who had found a new formula by which the muddled confusion of experience might be organized and controlled; for the whole history of modern science is really an account of the supplanting of vague but convenient notions by clear and simple principles derived from a fresh observation of the phenomena of nature. Historically, then, the behaviorists come very well recommended, since today they exhibit that attitude which has always been symptomatic of straightforward progress in science.

The defense of the behaviorist does not, however, consist merely in parrying the blow that is aimed at him; it rather lies in showing the positive errors underlying his opponents' objections. Such errors, moreover, are plainly discernible, and, as we see them, threefold. The first is the inability to perceive that the most complicated effects, both mental and physical, may be produced by extremely simple causes. For just as a tremendously intricate network of froth may be produced by the simple pendular motion given to a soap-shaker across the surface of soapy hot water, so as complicated a "state of mind" as you please may be produced in some individuals by nothing more than simultaneous rises in the temperature and humidity of the atmosphere. Moreover, we have all seen chronically irritable persons the cause of whose disquiet could be traced to a carious tooth, a table too high for them to work at comfortably, direct electric lighting, and so on, while all the time they were entirely unaware of such a circumstance as the sole critical cause of their elaborate mal-functioning. Indeed, we

might even say that if such slight environmental changes as these can affect our whole temperament, the behaviorist, far from being over-simple in his explanations, has scarcely gotten the vision of how few the essential phenomena of mind really are.

The second error which the opponents of behaviorism commit is their insistence upon the scientific value of all introspective data whatsoever, and their demand that the behaviorist not only explain these data, but also include them one and all in his scheme of reflex response. The fault here lies in the assumption on the part of the introspectionist that the data which he has amassed are *the chief data* of psychology, whereas they may not necessarily be anything more than the *by-products* of his method. But more than this, the introspectionist fails to see that whenever we introspect, we actually lose contact with the environment of the stimulus. Introspective psychology, therefore, is only a special device for training us to increase the number of verbal associations which any stimulus may arouse. It becomes merely the science of imagery, which is by no means the same thing as the science of thinking, for, as is well known, the presence of imagery does not imply that it will be made use of. And if the introspectionist does not himself always make use of the chosen data of his science, how can he expect that the behaviorist will feel bound to give them a prominent place in his scheme?

The third error of the anti-behaviorists consists in their unchivalrous attitude toward physiology. For while they may be observed time and time again to resort to the nervous system and to the sense organs as a means to explain mental processes, yet when they are pressed about this, they are usually found admitting that all such structures are at best "convenient fictions," never, except possibly in disease, causing or conditioning mental states, but merely affording agreeable, figurative parallels in the shape of center and margin, grades of complexity, or hypothetical spinal levels. The chief difficulty here lies in the interpretation of the human body as an architecture rather than as a "going concern," as a pictorial rather than a dynamic affair, in terms of structure instead of function, of anatomy rather than kinematics. And as this error is fundamental, so are the results of it pervasive.

Perhaps, however, the current toward behaviorism has set so strongly as to make such remarks as these unnecessary to pursue any further. That current, moreover, began to acquire its initial velocity when the first motor theories of consciousness began to be formulated. For the termini of all motor theories are nothing

more or less than mechanistic hypotheses such as Crile,[1] for example, has formulated. Even the law of dynamogenesis pointed in just that direction. So that when the behaviorist asserts that the fundamental datum in psychology is reflex response, he is simply announcing the terminus of the trend in all psychology for the last thirty years. The transition is easily traceable from James to Angell, and thence to Judd, and so on to Watson and Holt—nay, the careful reader can detect many a behavioristic utterance in La Mettrie, Lewes, Bain, and Spencer, to say nothing of a dozen other writers both more recent and remote than these last. For once it is admitted that afferent impulses do not stop at the "soul," but proceed straightway to efferent nerves and thence to muscles and glands, and as soon as it is granted that such pathways and structures are essential equally in Medusa and in man, there will be few psychologists indeed who would not seek to complete that hypothesis which Descartes meant to extend over the whole animal kingdom, had not the predicaments of Bruno and Galileo deterred him.

It is not for a moment to be understood that the mere theoretical reduction of mental phenomena to reflexes, or even the establishment of the facts of "action-patterns" or "specific responses" constitutes the whole labor of the psychologist. For even granting that these are the lowest terms of mind, there still remains the larger part of the task yet to be performed, namely, the establishment of the proof that no mental phenomenon can be completely explained without precise and unequivocal reference to the combination and integration of such neuro-muscular reflex responses. This work, strange to relate, now moves far too slowly and heavily. Even behaviorists seem to be unaware of the extent to which it has been halted. Fortunately, it is not difficult to show why this retardation has occurred. It is because the majority of behaviorists have themselves made nothing whatever out of those very factors to which all motor theories of mind indubitably point, namely, the mechanics of muscular action, including the work the skeletal muscle accomplishes to move its bone, and the release or transformation of energy within the muscle which is brought about through the motor nerve. On these matters, which are some day bound to be regarded as equally important with nervous phenomena for behavior psychology, almost every behaviorist remains silent and uncommunicative.

[1] Crile, Dr. G. W., *Man, an Adaptive Mechanism* (Macmillan). See also his article, "A Mechanistic View of Psychology," in *The Origin and Nature of the Emotions* (W. B. Saunders Co.).

Without going into this matter here any further, except to state that it provides as fertile a field for research as could be desired by the laboratory investigator—in such things as the study of memory postures, the range of imagination possible under certain bodily restraints, *etc.*—let us at once consider whether the reflex response involved in such a simple action as grasping with the hand may not have a far greater significance than we imagine for adult behavior, and even for many so-called intellectual processes. It is the purpose of this paper to exhibit such a connection, and therewith to fully justify the behaviorist against the charge of over-simplification.

The grasping reflex consists of a tendency on the part of an infant to close its hand about any suitable object pressed against its palm, and to cling to that object often for ten or fifteen seconds even if it is lifted so high that the infant is suspended in the air. Watson,[2] who has made a careful study of this tendency, of its varying strength from day to day, and of its disappearance toward the end of the fifth month, states that "in one baby born without a cerebrum the reflex was practically perfect up to the day of its death at 18 days." Twenty-eight observations made on one baby during the first three days revealed what is to all intents and purposes a truly natal tendency to grasp the stick and support the full body weight with either hand. The psycho-physiology of this tendency is important, not solely because the reflex is an index of normality and strength, nor yet because of the fact that the infant *hangs* like a monkey from a limb (for while this hanging freely is a sign of the strength of the instinct, it is not necessarily the sole proof of it), but because of the meaning of such a tendency for adolescent and adult mentality—in a word, for "the learning process called life" in its widest as well as in its most particular signification. But first let us look at the physiological genesis of the reflex itself.

The grasping reflex is a sensori-motor action which begins with the adequate stimulation of the touch spots in the skin of the palmar surface of the hand. This stimulation is carried up to the brachial plexus by the palmar-cutaneous branches of the median and ulnar nerves and is there distributed to the posterior roots of the last four cervical and the first thoracic nerves, whence, after being shot ventrally across the cord, it reappears in the anterior roots and is carried by the motor branches of the median and ulnar nerves again to the various flexor muscles of the palm and fingers.

[2] Watson, J. B., *Psychology from the Standpoint of a Behaviorist* (Lippincotts), pp. 240, 275.

It is a true spinal reflex, not requiring the cerebrum. The flexor muscles thus innervated quickly contract, the hand is closed about the stimulus and holds it firmly, and indeed, as already observed, with such tenacity that the infant's weight can be lifted into the air and held there unsupported. To this tenacity three principal factors contribute, which we shall now briefly examine.

To begin with, "Flexion is more powerful and complete than extension of the fingers. The *flexor profundus* alone acts on the terminal phalanges; the *flexor sublimis* and *flexor profundus* together flex the proximal interphalangeal joint; and flexion of the metacarpo-phalangeal articulation is effected by these muscles, assisted by the interossei, lumbricales, and flexor brevis minimi digiti. Extension of the phalanges is effected by the united action of the extensors of the digits, the interossei and lumbricales; extension of the fingers at the metacarpo-phalangeal joints is produced solely by the long extensor muscles. *Separate extension of the index finger* only is possible; the three inner fingers can only be flexed and extended together, on account of the connecting bands joining the extensor tendons on the back of the hand."[3] The first reason, then, why the grasping reflex is so powerful is to be found from a consideration of the muscular and bony machinery of the hand itself. For, all teleology aside, the hand is the most *efficient flexion* machine in the body.

Another reason why the grasping reflex is so powerful is revealed by a consideration of the mechanics of the proprio-ceptive system. There are end-organs of muscular, tendinous, and joint sensations which are necessarily stimulated by the flexion-reflex of grasping. The stimulation of these sense organs, either by its being carried clear to the spinal cord or merely to the juncture of the median and ulnar nerves in the forearm, is transmitted back to the flexion muscles to reinforce the contraction already established there. By this mechanism, called the "circular reflex," the muscles automatically reinforce their own contraction. It is not at all necessary to consider that these proprio-ceptive reflexes are provocative of anything *conscious*, since we are countless times entirely unaware of the motions and postures of the skeletal muscles, however important for conscious response they may be. For the behaviorist sharply distinguishes between (conscious) kinesthetic sensations and (unconscious) kinesthetic events in the response process. To be sure, this reinforcement, as well as the flexion reflex itself, may soon wilt, with the result that the infant falls

[3] Cunningham's *Text Book of Anatomy* (1903), p. 336. See also pp. 323–335 for illustrative cuts.

onto his pillow. But such a wilting is only to be expected from both a consideration of the normal duration of any prolonged muscular contraction, as well as from a knowledge of the stimulating effect of gravity upon the extensor system of the hand and forearm. For not only does every peripherally stimulated reflex easily tire on account of the expense to which the body is put to maintain the respiratory exchange in nerve and muscle, but it also happens here that the infant's unsupported position is bound to produce tendinous strains which sooner or later will stimulate spasmodic movements eventually involving the antagonistic (extensor) muscles of the hand. (It is pertinent to remark in passing that while this reflex lasts, it exhibits, as least so far as the behaviorist is concerned, a true case of *attention,* since the flexed posture of the hand is such as to keep the sense organs of the palm adjusted to receive the stimulus most effectively.)

Still another factor contributes to the strength of the grasping reflex in the newly born. For whether it be dogmatic to assert that this reflex is *learned* by the organism during his embryonic life, it seems more than likely that it *is* learned then in the same manner as any other habit or skilful action is acquired by man. For mark, that the infant grasps because his mechanism of prehension is fully developed, and not just because he is *born.* In the light of this observation, which can be safely generalized for all human activities whatsoever, it is doubtful whether any of our behavior should be unqualifiedly termed "instinctive."

This grasping reflex, practically perfect at birth, requires, as we have already mentioned, a precise sensori-motor mechanism, involving, among other things, the median and ulnar nerves. To be more exact, certain of the nervous pathways of the body have become at the moment of birth attuned to function fully and specifically upon the presentation of an adequate touch stimulus to the palm of the hand. Indeed, as soon as the infant is born, the median and ulnar nerves "know how" to perform their characteristic and appropriate—one might almost say *exclusive*—function. Such appropriate functioning requires both time and practise.

Let us venture an explanation of the manner in which this spinal reflex may have been learned.[4] As is well known, the embryo develops characteristically shaped hands by the end of the eighth week of foetal life, which hands, as the embryo proceeds towards maturity, assume a semi-flexed posture which is maintained until the time of birth. At the same time that the hands were being shaped, the muscles were growing in them—each muscle of the

[4] For the following suggestion I am indebted to Dr. Edwin Holt.

flexion set growing with and out into the rudiments of the digits—while the appropriate nerves were steadily prolonged into the various tissues of the hand. When, therefore, the hand attained its final shape, it was supplied with both sensory and motor nerves ready to be coordinated by the first stimulus which should be presented. The nature of such a stimulus, even in prenatal life, is not difficult to conjecture. The embryo's hand, be it remembered, is partly flexed, and its fingers nearly touch the palm. When, therefore, any chance or random movement of the mother's body, occasioned by her walking, sitting, lying down, or rising, disturbs the equilibrium of the embryo, it is more than likely that both its palm and fingers receive entirely adequate touch stimulations. The sensory nerves thus being stimulated, transmit waves of electrical change to the cord, across the synaptic junctions, down the motor pathways, and thence to the end-plates of those muscles which it is the particular business of the median and ulnar nerves to contract, namely, the flexor muscles of the palm and fingers. Such a stimulation is given not once or twice only, but hundreds or even thousands of times, the sensitivity of the palmar surface becoming greater as the muscular contraction becomes more and more pronounced. In this way, we conjecture, the grasping reflex comes to be *learned,* and even by as long a period of practise as three or four months' time. The strength of this reflex may then be attributed not only to the mechanical properties and the proprioceptive mechanisms of the hand, but also to the possibility that the embryo may have unconsciously practised the flexion of the muscles of his fingers and palm.

Now such a sensori-motor reaction, made possible by the factors we have just described, seems to have special value not only for determining the normality of the infant, but also for the life of the growing child and for the social and intellectual behavior of the adult. To begin with, the hand is *par excellence* the active exploratory mechanism whereby we learn the shape of objects. It is not so much with the eye that we educate ourselves to differentiate contours and dimensions, but rather with the palmar surface of the hand and fingers, which contours and dimensions we also appreciate best when the hand is closed or folded about them. To be sure, it is not the *tenacity* of the grasp which functions essentially in our learning about shapes and sizes (since that, indeed, is lost about the 150th day of life), but only the continuous tendency toward flexion with respect to nearly all objects whatsoever which come within the child's reach. The grasping reflex suffers alteration and development of many kinds whereby it enables the child

to handle his food-pusher and his spoon, to undress himself, to write, to play ball, and to do a thousand and one more or less useful things. What is lost in tenacity of grip is more than made up in deftness and flexibility. Besides, the reflex is finally so well coordinated with arm, shoulder, and trunk movements, that much of the strain which would be produced in the hand by rowing, driving, and similar operations is nicely distributed over a wide muscular area.

The use of the flexed hand in educating us to perceive the shape of spheres, cubes and octagons indicates, however, only in a small way the intellectual significance of the grasping reflex. For it takes only a scanty research into human activities to reveal that this tendency to close the hand tightly is the basic response in a great variety of widely differing behaviors. Our word *pugnacity* is derived from the latin *pugna*, a fist, that is, a tightly closed fist, a fully functioned grasping reflex. *Boxing, fisticuffs,* and the actions of *shaking, doubling,* or *clenching the fist* are all modifications of this prenatally learned instinct. To be sure, *pugnacity* is not primarily an intellectual accomplishment, but the art of boxing is. There are other kinds of violent behavior which are strictly dependent upon the integrity and development of this same simple response. Our language points to them by such terms as *grabbing* and *snatching, wringing from* and *tearing away, scrambling for* and *pouncing upon,* and *snatching from one's grasp;* while *wresting from, laying violent hands upon,* and other forms of *rapacity* are equally served by this flexion mechanism. Since, also, the grasping reflex is the preliminary step in the making of twisting or torsional arm movements, the *extortioner* and the *grasping miser,* the beggar with the *itching palm,* and the *close, hard,* or *tight-fisted miser* may be mentioned in this same catalogue of derivatives.

Yet even more striking evidence of the importance of the grasping reflex for adult human behavior is found in the use of those terms which signify *physical possession,* not only as far as bare *prehension,* but also as far as the *retention* of either booty or property is concerned. Our words *prehension, prensation,* and *acquisition,* the terms *grip* and *gripe,* as well as the expressions *get into one's clutches,* or *into one's hand, get hold of, gain a hold upon, get into one's grasp, lay or clap one's hands upon,* as well as the proverbial *grasping at straws* in which action the drowning man reverts to his earliest perfected reflex, one and all show how widely the flexion of the hand enters into the struggle for existence and into the mastery over one's fellows. In illustration of the combined action of the grasping and circular reflexes we have such phrases as *keeping hold*

of, clinging to, laying, getting, taking, catching firm hold of, or *fastening upon;* the words *clench, clutch, clinch, grapple, grab, collar,* and *take by the throat* are similarly derived from this primitive manual action; as well as are the expressions *tight hand,* or *tight grasp, strong hand, making sure of, getting hold,* or *having a firm hold of,* and *getting into one's hand.* The legal term *mortmain,* the proverbial *bird in hand,* and that signifier of failure, *to lose one's grip,* are simply additional proofs not only of the social and intellectual significance of the grasping reflex, but proofs as well in our defense of the behaviorist against the charge of *over*-simplification.

If any additional proofs are needed, it is wise to notice that many of our phrases which signify authority, whether they be classed under the captions of *management, government, despotism,* or *tyranny,* are basically the grasping reflex. Witness such expressions as *get* or *gain the upper hand, pull the strings, have* or *get the whip hand, hold authority, wield the scepter, take the reins of government, Dieu et mon droit* (*i.e., right hand*), *rule with a high, strong, tight,* or *heavy hand, iron hand* or *iron grip, carry with a high hand, rule with a rod of iron,* or *have the game well in hand.* Witness also that one meaning of the term "rights" is also based on the same simple reflex, for " possession is nine-tenths of the law."

What further proofs of the intellectual significance of the grasping reflex could be asked for than are found in a consideration of the functions of such tools as *tongs, forceps, pincers, nippers,* or *pliers?* All these instruments are simply mechanical devices for the performance of those actions which our clenched hands, even though assisted by our finger-nails, can not in their weakness accomplish. But even here our list of derivatives is not completed. For many other activities, some of which refer to the most abstract intellectual operations, ultimately refer to the motor functions of the median and ulnar nerves. *Apprehension* is *catching on,* while *comprehension* is *seizing* for the purpose of estimating. The *emancipated* slave has profited by the *mandate* for his *manumittence.* Things clear to us are *manifest;* cotton cloth is *manufactured;* some primitive boats are *manumittive;* loaded dice are *manipulated;* the author sends to the publisher his *manuscript;* the hand clutches the *mandolin;* the contrabassist " plays by *handfuls* " ; the pervert performs *manustupration;* the convert is given the *right hand of fellowship.* We speak of an *intellectual grasp,* which generically bears more than a superficial resemblance to the *comprehension* of such simple things as shapes and dimensions. Even our mathematical operation of *subtraction* is learned by the child through his *manipulation* of blocks

and marbles. Similarly, *abstraction* is a "taking away," that is, acting toward anything *as if* it were made of removable parts. And to close the list we mention that great group of words such as *command, demand,* and *remand,* all of which mean in some important sense the training which the hand has gotten to close over and grasp tightly some adequate stimulus to the sensitive palmar surfaces.

It is thus no long step from the grasping reflex of the newly born to the comprehension by the adult of a mathematical formula. The step is short both to the etymologist and to the behaviorist as well, for the very good reason that they both, whether consciously or not, integrate these many diverse terms and phrases by means of a precise physiological function. Our thesis, then, is that whenever we use these various expressions with the proper signification, they have meaning only to the extent that our coordinated neuro-muscular responses include "action-patterns" involving the motor pathways of the median and ulnar nerves and the muscles of the palmar architecture. That is to say, *we think these various terms* (quoted above) *by means of our hands.* Thought processes are response processes, involving not only sensory and motor nerves, but *muscles* as well, and not only muscles, but also the chemical mechanisms which maintain the respiratory process in the machinery of locomotion. Perhaps the following considerations will render this thesis more intelligible.

To begin with, it is not reputable logic to conclude that just because these various words and phrases which are etymologically derived from the act of grasping are unaccompanied by *awareness* of the hand (*i.e.,* kinesthetic sensations or images of grasping), the use of these words is entirely disconnected from the reflexes involved in the overt act of grasping. I know that many psychologists and most philosophers would flatly deny that the process of *abstraction* or the concept of emancipation, for example, was in any way connected with the stimulation of the palmar muscles, even though they might be willing to admit that some unknown (and undiscoverable) brain process might possibly be involved in such-like thought activities. But it seems nothing short of logical perverseness thus to seek for the explanation of the thought processes in the cerebrum ("the dark throne of mentality itself") when neuro-muscular reflexes and not cerebral events are almost the only things in physiological psychology we have a fixed acquaintance with. Besides, what else can the brain be doing except transmitting stimulation from fibre to fibre?—not a very illuminating explanation for such varied activities as we carry on, even in our thinking! To push the explanation of the thinking process into the obscure is, to say the least of it, both timid and misleading. I do not believe that we need to be so off-hand about the

matter. For not only is it absurd to conjecture that because we do not know exactly wherewith we think, we must therefore think with the brain; but it is also untrue to our scientific traditions in physiology not to attempt an explanation of the thought processes in terms of those reflexes which we have everywhere so plentifully under our observation. Astrology became obsolete the moment the law of falling bodies was discovered, and introspectionism became an untenable doctrine the moment the principles of dynamogenesis and reflex action were generally established. And just as we now explain all stellar events by physics, so also we can, I surmise, explain mental events by neuro-muscular processes alone. (I say "neuro-muscular" rather than merely "nervous" processes, for the very good reason that the chief function of the nervous system, so far as we know it, is its activation of muscles and glands.)

How, then, does the grasping-reflex mechanism function in our thinking such concepts as *rapacity, demand,* and *emancipation?* The answer is, I think, extremely simple. There is a law in physiology called the *all-or-none* principle of nerve and muscle, about which Professor Bayliss writes as follows:—

"Nerves can be excited, then, by many and various forms of stimuli and, supposing that the nerve is in connection with some indicator, such as a muscle, different strengths of stimulation are found to produce different degrees of contraction. . . . Now the most careful experiments (see especially those by Keith Lucas, 1909), have shown that the degrees of contraction of a muscle that can be produced by varying the strength of the excitation of the nerve to it, are not as numerous as the degrees of strength of the exciting stimulus, but take place in a series of steps which are no more numerous than the number of motor fibres supplying the muscle. This fact obviously indicates that the varying degrees of contraction are due to differences in the number of muscle fibres in the state of contraction at one time, and that each fibre can only be excited to its maximum capacity or not at all."[5]

The implications of this law for our particular problem as well as for the thought process in general are striking and momentous. For it is a fully defensible hypothesis that "to think of" doing something differs from the overt activity itself chiefly in the number of nerve and muscle fibres involved. Indeed, only on such an hypothesis is imagery of any sort possible. For when a man has a visual, an auditory, or a motor image, he is simply acting *as if* the color, the sound, or the motion were present. Now the all-or-none law beauti-

[5] *Principles of General Physiology,* Longmans, 1918.

fully provides a physiological basis for just such an "as-if" reaction. For since every response is, so far as it goes, *maximal* for the number of nervous and muscular elements involved, images may be defined as some of those responses which are carried out on "low gear" by the neuro-muscular mechanisms of the body. Moreover, the safe assumption is that whenever we employ any of these words or phrases which we have previously related to the grasping reflex, and mean anything by them, there is taking place in our median and ulnar nerves and in the flexor muscles of the palm and fingers just such activities as overt grasping would involve, only on a much smaller scale. Theoretically, indeed, as few as a dozen motor neurones from either of these nerves stimulating a dozen muscle fibres in the palm or fingers in some specific pattern of activity would be sufficient to provide any one of these words and phrases with a meaning. And unless we are very much mistaken, something closely akin to this does happen when a man says, for example, "Wait until I get hold of you!" or "I grasp the situation at once." And while this hypothesis is largely a matter of conjecture, I entertain the highest hopes that the electro-physiologist will verify it.

If these arguments are sound, and these predictions realized, we shall go a long way toward clearing up many difficulties in behavior psychology. Indeed, the problem of the relation between body and mind will have passed into history. But even before such verification as we hope for, the weight of evidence is overwhelmingly in favor of interpreting the thought process as "a procession of motor attitudes," and by this we mean a neuro-*muscular* process, and not a cerebral mystery. Moreover, we have just shown that the grasping reflex is not merely a reminiscence of tree-life, but an essential, valuable, significant, and permanent factor in our intellectual and social development. Consequently it seems not too much to claim that a proper interpretation of such a reflex mechanism not only serves to acquit the behaviorist of the charge of over-simplification, but it also shows that the simpler the formulas of psychology, the more they explain. For it may well be that the motto of the behaviorist will eventually become: *Give me a nerve and a muscle, and I will make you a mind.*

ROBERT CHENAULT GIVLER.

TUFTS COLLEGE.

THE SANITY OF HAMLET

Pol. What follows then, my lord?
Ham. Why, as *By lot, God wot*—and then you know——

"WHETHER Plato died in a dream, as some deliver, he must rise again to inform us." The question of the madness of Hamlet, whether it was real or feigned, has the same and greater difficulties in the way of its solution. His own testimony could not be regarded as conclusive—for, if he were truly mad, we could hardly accept his word for it; while if he seemed mad merely, we could hardly believe a present protestation that the appearance was all a sham.

The learned Doctor Johnson remarks, "Of the feigned madness of Hamlet there appears no adequate cause, for he does nothing which he might not have done with the reputation of sanity," while the wiser Coleridge finds in the play evidence of "Shakespeare's deep and accurate science in mental philosophy." The latter believes that Hamlet shows the effect of an over-balance of contemplative faculty. "His thoughts, and the images of his fancy, are far more vivid than his actual perceptions;" there is "a great, an almost enormous, intellectual activity, and a proportionate aversion to real action consequent upon it. . . . This character Shakespeare places in circumstances under which it is obliged to act on the spur of the moment:—Hamlet is brave and careless of death, but he vacillates from sensibility, and procrastinates from thought, and loses the power of action in the energy of resolve."

The young intellectual, sorrowing for the death of his father, very naturally developed a psychosis under the influence of his mother's unseemly second marriage. He became peevish. As he was not a valorous fighting man, his peevishness did not show itself in a pugnacious irritability. As he was neither narrow-minded nor a devotee of wine and sensual pleasure, he did not choose the ascetic mode of self-denial nor wander in the primrose path of reckless dalliance. Being simply a thinking man, he took to logic-chopping—and set up about himself a barricade of rigorous thinking behind which he was free to pursue his own reflections.

One can not be too logical in this world and continue to carry on his social functions. Such procedure is permitted only to small children who are not yet old enough to have learned that logic is strong medicine not to be taken too freely for the ills of every day, to old persons who are willing to accept the name of being peevish, and to unpleasant characters in fairy tales. It is the method of

those whom Alice finds so annoying in her encounters in Wonderland. If Hamlet was really mad, his psychosis was that of an intellectual, a hypertrophy of that inner eye whose function it is to perceive meanings, relations and implications; while if he was only feigning his insanity, then he did it by taking things too strictly, too literally, by a general social perverseness manifested in a desire to quibble and split hairs. His madness, whether real or feigned, was an excess of sanity. A Greek name for the psychosis would resolve the paradox.

A little logic is a dangerous thing. A naïve acceptance of things at their face value without an understanding of their usual purport and broader significance is an indication of lack of experience. When Alice failed to understand a remark of Humpty Dumpty and said "I beg your pardon," he replied "I'm not offended"—which was reasonable enough. He was simple, but good-natured. When she asked him, "Why do you sit out here all alone?" it did not occur to him that she assumed the gregarious instinct and he replied, "Why, because there's nobody with me! Did you think I didn't know the answer to *that?* Ask another." After more conversation of a similar sort, Alice walked quietly away, and she couldn't help saying to herself as she went "Of all the unsatisfactory people I *ever* met—." Undoubtedly she recognized in Humpty Dumpty the feeblemindedness of arrested development.

Humpty Dumpty's insistence upon the strictly logical attributes of things was evidence merely that he had the clear-seeing eye of a simple child. But let an older person, mature beyond the imputation of childishness, such as Hamlet was, show fondness for such an insistence, and the social world regards him as peevish and irritable. Indeed, an excess of sanity is socially unreasonable.

A gushing young visitor at Niagara Falls remarked, "Oh, isn't it wonderful, all that water falling that way," and an Irishman who happened to be a member of the party of tourists responded, "Well, what's to prevent it?" The Irishman ceased to be a desirable member of the party, and the young lady's feelings were wounded because she supposed that the Irishman had been annoyed by her burst of (not very logically expressed) enthusiasm. Doubtless the Irishman was annoyed, and doubtless Hamlet was annoyed by the garrulity of Polonius. Each reacted similarly to the annoyance, and each showed his feelings in a logical fashion.

What could be more reasonable than the reply of "Words, words, words" which Hamlet makes when Polonius asks him what he is reading? and what could tend less to encourage further conversation? What could be ruder, or more logical, than Hamlet's

reply when Polonius offers to take leave of him?—"You cannot, sir, take from me anything that I will more willingly part withal, except my life, except my life, except my life."

At another time when Polonius and Hamlet are exchanging banter, Polonius is made to say "If you call me Jeptha, my lord, I have a daughter, that I love passing well," and Hamlet jumps upon him with the retort, "Nay, that follows not." There is no implication there. Whether he is called Jeptha or not, he has a daughter just the same. The one has nothing to do with the other. They are logically independent. And this is our clue to the character of Hamlet. Throughout the play he is the alert intellectual splitter of hairs. To his friends, when he wishes to be agreeable, his hair-splitting is pleasant banter: to the others, when he chooses to be reserved, it appears as a barrier behind which he hides his thoughts and motives.

When Hamlet learns from the ghost the story of his father's murder, everyone, abruptly and for the time, ceases to be his friend. Until he shall decide upon a course of action he will trust no one. Horatio and Marcellus question him for news, but he decides to keep his thoughts to himself. He swears them to secrecy and then informs them gravely that "There's ne'er a villain, dwelling in all Denmark, but he's an arrant knave," a logical proposition true on the face of it. Horatio objects that no ghost need come from the grave to tell them that, and Hamlet cheerfully agrees—"Why right; you are i' the right: and so without more circumstance at all, I hold it fit, that we shake hands, and part." Hamlet's manner of dealing with his questioners is reasonable enough. He asserts a truth beyond which there is no question—as does the father who is embarrassed by the question of his son, "What is that for?" and replies "Why that is something to make little boys ask questions." Any pragmatist will agree that the reply is profoundly philosophical and true—and like Truth it brings an end to the discussion.

Hamlet is constantly aware of his own mental processes. More than that, he is aware that he is constantly watching them. He is in the position of the professional philosopher who criticizes his thoughts while he is thinking them—and confesses it when he reasons in his great soliloquy, " and by a sleep to *say* we end the heartache and the thousand natural shocks that flesh is heir to." This he thinks is a consummation devoutly to be wished, but he reviews his logic and concludes that sleep is not a premise from which the absence of dreams may be inferred. And the consideration of dreams which may come perchance in the sleep of death must give us pause.

From sleep and death he refuses to draw the inference of absolute non-being. The minds which have evolved the Occidental religions have made the same refusal. Hamlet has here reasoned to the central problem of metaphysics, but he reasons critically and refuses the leap to the rash and unwarranted conclusion which is the *cul de sac* of the mystics.

When Indra in the Hindu mythology seeks instruction from Prajapati as to the nature of the Self, he is informed that "He who moves about happy in his dreams, he is the self, this is the immortal, the fearless, this is Brahman." And he goes away satisfied in his heart. But the satisfaction is not for long, for it occurs to Indra that the happy dreamers might possibly change and might have bad dreams. He returns to Prajapati and objects, "Sir, although it is true that that self is not blind even if the body is blind, nor lame, if the body is lame, though it is true that that self is not rendered faulty by the faults of the body, nor struck when the body is struck, nor lamed when it is lamed, yet it is as if they struck the self in dreams, as if they chased him. He becomes even conscious, as it were, of pain, and sheds tears. Therefore I see no good in this." After he has lived with Prajapati for a time, Indra is enlightened further with respect to the self—"When a man, being asleep, reposing, and at perfect rest, sees no dream, that is the Self, this is the immortal, the fearless, this is Brahman." Thereupon he goes away satisfied in his heart, but the satisfaction again does not last for long. He returns to Prajapati, bringing fuel in his hands as is the custom with students, and objects regarding the dreamless sleeper, "In truth he thus does not know himself that he is I, nor does he know anything that exists. He is gone to utter annihilation. I see no good in this." Prajapati replies with many words to the effect that the Self is the mind, but the involved explanation is not convincing, and Indra softly and silently vanishes away and never is met with again in the myth.

Hamlet is well aware of these considerations which Prajapati brings forward in an effort to meet the objections of Indra. He knows also—as we suspect that Prajapati did—that they are inadequate to meet the situation. He says that there is nothing either good or bad but thinking makes it so. He could be bounded in a nutshell and count himself king of infinite space were it not that he had bad dreams. Indeed he is fully conscious of the crux at the center of metaphysics. At one time he seeks in his reflections a guide for his conduct, at another he finds in them basis for banter with Rosencrantz and Guildenstern.

One of his conversations with these two friends is devoted for a considerable time exclusively to entertaining logic-chopping. He shows them, as he shows Horatio at another time when the dust of Alexander is under discussion, that he delights in the exercise of the syllogism. He shows them also that he understands that a false proposition implies any proposition, for one of them asserts that there's no news "but that the world's grown honest," and he replies "Then is doomsday near: but your news is not true." Not satisfied then with drawing the first inference at hand from the asserted false proposition, he goes farther and himself asserts a proposition which his friends take to be false—that "Denmark's a prison"—but which he himself defends as true, thus leading them away to one of the central problems of philosophy, to the question of the subjectivity of judgments of value. "For there is nothing either good or bad, but thinking makes it so."

Logicians still debate whether a false proposition implies any proposition or not. Hamlet knew long ago that it does. And the matter is really not one for debate anyway—for the question is one of fact, whether a false proposition functions this way in our actual thinking. Everyone who uses profanity knows consciously or unconsciously that it does. Logicians are only conscious thinkers critical of their own thinking processes, and one of them may readily be imagined who would be willing to be damned if a false proposition does not imply any proposition. The author of the present writing is a Hottentot if it doesn't.

If Logic is regarded as a natural and objective science having for its duty the study of the relations which naturally arise between the propositions which linked together constitute thinking, then the drama of Hamlet is a most fertile source of raw material. For Hamlet thought more clearly than most men. He was aware of the essential principles of logic and used them consciously. He used them excessively: that was his madness.

Actuated by motives probably intermediate between those of the artist and those of the professional peddler of mystery, Poe wrote that "the question is not yet settled, whether madness is or is not the loftiest intelligence—whether much that is glorious—whether all that is profound—does not spring from disease of thought—from *moods* of mind exalted at the expense of general intellect." Sir Francis Galton, founder of the science of eugenics, cool-headed inquirer into things as they are, has an almost parallel passage. "Great men may be even indebted to touches of madness for their greatness; the ideas by which they are haunted, and to whose pursuit they devote themselves, and by which they rise to

eminence, having much in common with the monomania of insanity."

We can not know truly whether Hamlet was mad or not. But we can describe his symptoms and define his psychosis. He appears to have had an over-fondness for logic. When he was craziest he used it most. In his maddest moments he seems to have been the coolest and most sane. "Though this be madness," as the garrulous and meddlesome but after all very wise Polonius remarked, "yet there's method in't." The method is a denial of the social compromise. Much logic is a splendid barricade.

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REVIEWS AND ABSTRACTS OF LITERATURE

Mind-Energy. HENRI BERGSON. Translated by WILDON CARR. New York: Henry Holt & Co. 1920. Pp. x + 262.

The philosophy of Bergson has had the fortune of producing a wide range of reactions. His philosophy has had an appeal surpassing the limits of the academic world and transcending the group of technical students of philosophy and even of science. Even within the academic world, acquaintance with his work has not been confined to the philosophers. Largely owing to the vitalistic controversy, the biologists have read Bergson. According to their several dispositions and convictions, they have applauded him, have remained indifferent, or have been repelled by him. Perhaps Bergson's position in the eyes of the specialists, of other than philosophical fields, who have found his doctrine congenial is due primarily to the utility of his work for purposes of vitalistic apologetics. Again, theologians have found him acceptable or unacceptable—but at any rate, many have read his books. Beyond the academic circle, his philosophical fortunes have again been varied. In some groups, his doctrines have been a fashion. With others it has had a serious, if diffused, meaning for their personal views on life. Finally, it seems that certain writers whose social views are called radical by the newspapers, have grounded their doctrine upon Bergsonian ideas as a metaphysical basis.

There are several reasons for this extension of influence. It is unnecessary to dwell upon stylistic attractions. A deeper reason can be gathered by noting the points at which this philosophy makes its contact with the lay mind. If such a manner of statement be permissible, it might be said that the doctrine is up-to-date. It is noteworthy that *Creative Evolution* has been far more widely read than *Matter and Memory* and *Time and Free Will.* In com-

paratively recent times, what may be called the biological point of view has become popular. Certain of its generalizations and its evolutionary standpoint have become part of the general information of the educated. How much distortion of scientific principles this has involved we need not stop to inquire. The consequence is that Bergsonian doctrines possess an interest that arises not so much from its strictly philosophical teachings as from its biological atmosphere, its relation to the mechanistic-vitalistic controversy, and the bearing, in turn, of this upon theological and ethical questions of common interest. In the writer's opinion, these and similar considerations make it difficult to place Bergson's doctrine in the proper perspective. The doctrines concerning vitalism, the evolution of life, "creationism," and much that is therewith connected, are in part corollaries and in part applications and illustrations of the fundamental doctrines concerning duration, space, mind and matter. At least, if we assume the contentions of *Time and Free Will,* and of *Matter and Memory,* a large part of *Creative Evolution* follows without difficulty, as corollary and illustration. And, correspondingly, the central problem of this philosophy lies back of the third book, while in the latter the problem gets tied up more closely with evolutionism and vitalism.

The student will read *Mind-Energy* in the hope of finding an elucidation of difficult points in Bergson's doctrine rather than with the expectation of discovering a new phase or development of this philosophy as a whole. The volume consists of seven lectures and essays, with titles and dates as follows: I., Life and Consciousness (1911); II., The Soul and the Body (1912); III., "Phantasms of the Living" and Psychical Research (1913); IV., Dreams (1901); V., Memory of the Present and False Recognition (1908); VI., Intellectual Effort (1902); VII., Brain and Thought: A Philosophical Illusion (1904). We are told by the translator, H. Wildon Carr, that the essays were chosen by Bergson "with the view of illustrating his concept that reality is fundamentally a spiritual activity" (p. v). We are further told that the term Mind-Energy implies and depends on a metaphysical concept. It is impossible "to conceive an ultimate dualism—mind and matter as the co-existence of two independent realms of reality." The new concept is of a "reality with which life and consciousness are identical, as distinct from the concept of a reality independent of life and conditioning it" (p. vii).

This statement of the thesis of the volume leads one to expect new light upon the central problem of Bergson's philosophy. This problem concerns the relation of life and consciousness, and of life,

consciousness, and matter. The ambiguities in these relations may be set forth as follews. Bergson in general seems to insist that reality is psychical and that it is life.[1] On the one hand, Bergson certainly identifies, in some sense of the terms, life and consciousness. Consciousness is said to be "co-extensive with universal life."[2] The question is raised: what is the principle "that has only to let go its tension—may we say to *detend*—in order to *extend* . . .?" The answer is that for lack of a better word it is to be called consciousness (*C. E.*, p. 237). Life as a whole is described as a wave which rises, and this wave is said to be consciousness (*C. E.*, p. 269). These, and many other statements, seem to imply that reality, life, and consciousness are one. But, on the other hand, we find statements apparently in conflict with this. In *Matter and Memory* consciousness is said to be a synonym of real action or immediate efficacity. Its rôle is to preside over action and to effect choice.[3] Bergson defends the notion of unconscious psychical states, so that while the real is psychical throughout, apparently it is not conscious throughout.[4] The cumulative past, it is said, presses "against the portals of consciousness that would fain leave it outside. The cerebral mechanism is arranged just so as to drive back into the unconscious almost the whole of the past" (*C. E.*, p. 5). Clearness of consciousness varies with the number and precision of the movements of an organism. Consciousness is "the light that plays around the zone of possible actions or potential activity which surrounds the action really performed by the living being. It signifies hesitation or choice" (*C. E.*, p. 144). These and similar passages apparently limit consciousness to moments of life. It is to be found at the intersection of life and matter. It can not therefore be identified with life. Life is of the psychological order (*C. E.*, p. 257). But within the field of the living we distinguish the unconscious psychical from the conscious.

These inconsistencies are so apparent that they suggest their origin in over-simplification in interpretation. There are various statements bearing on the question and qualifying phrases that need to be noted. It is with "universal" life that consciousness is co-extensive. The principle whose detension produces extension is called consciousness, "for want of a better word." And there is added immediately: "But we do not mean the narrowed con-

[1] *Creative Evolution*, trans. by Mitchell, 1911, p. 257. Hereinafter referred to as *C. E.*

[2] *C. E.*, p. 186; *cf.* pp. 257, 270, 362–3.

[3] *Matière et Mémoire*, neuvième édition, 1913, p. 153.

[4] *Ibid.*, p. 152 *et seq.*

sciousness that functions in each of us. Our own consciousness is the consciousness of a certain living being, placed in a certain point of space; and though it does indeed move in the same direction as its principle, it is continually drawn the opposite way'' (*C. E.*, p. 237). Somewhere Bergson points out the difference between the mere absence of consciousness and consciousness present but nullified, suppressed.

Perhaps the way out of these difficulties is to be found in these considerations. Life and consciousness are *by right* coextensive, but are not in fact. The limitations of the organs of consciousness, *e.g.*, the cerebrum, serve to compress consciousness as within a vise, to use a Bergsonian figure. Consciousness is largely nullified, but is present; hence the false appearance that consciousness and life are not coextensive. The consciousness that functions in each one of us, the individualized consciousness, is a limitation of life. The realm of the unconscious psychical is by right conscious. Every organism is, so to speak, as conscious as conditions permit. Life is conscious wherever possible. Perhaps in the distinction between intuition and intelligence (originally interpenetrating in the life impulse), another relevant consideration is to be found. The intuition of duration brings the vision of life in its original character; there is, so to speak, a sort of consciousness appropriate to life itself and of this we get glimpses through intuition. But the individualized consciousness, utilizing an organ of action and choice, characterized by the dissociation of intuition and intellect, and affected by the intellect's concern with matter, is a consciousness limited to the present, constituting the intersection of life and matter. One is reminded here of the distinction between the superficial (spatialized) self and the deeper self of *Time and Free Will.* This distinction between a universal life-consciousness in which all potentialities interpenetrate and the individualized consciousness in which these are dissociated and "spatialized'' (and perhaps checked or nullified here and there) seems to be implied when Bergson states that it is consciousness "or rather supra-consciousness, that is at the origin of life. Consciousness, or supra-consciousness, is the name for the rocket whose extinguished fragments fall back as matter. . . . But this consciousness, which is a *need of creation,* is made manifest to itself only where creation is possible. It lies dormant where life is condemned to automatism; it wakens as soon as the possibility of a choice is restored'' (*C. E.*, p. 261).

There seems to be, in the books to which we have been referring, no explicit treatment of the difficulty. In the last two para-

graphs several suggestions that may bear on the question have been collated; the use of them that has been indicated is, of course, frankly conjectural, and it is not easy to determine how well it represents Bergson. But so far the results may be summarized as follows: Life is of the psychological order, and is reality, the reality that endures and is creative. In right, life is universally conscious or is something like consciousness; in fact, it is only in part conscious, though in essence psychical. The consciousness of any organism is a residue—it is all that can get through in given conditions. In a sense, the materiality of that life is precisely the suppression or limitation of life, the nullification of consciousness. In so far as consciousness has adopted the habits of matter, life and consciousness are dormant (*C. E.*, p. 267).

Assuming that we have here the direction in which Bergson would meet the difficulty, we find that the difficulty has not vanished, but has changed its form. For now the nullification of consciousness must be accounted for. Why and how is it nullified? Why should life be in right conscious throughout but in fact conscious only in part? Why is consciousness ever dormant? Why does life renounce consciousness, and why does psychical living reality detend in order to extend? Why does consciousness adopt the habits of matter? How is unconsciousness to be explained?

Here our attention must be focussed on the double rôle of matter. Matter is responsible for the nullification of consciousness. Life meets matter as an obstacle. The configuration of matter determines the way in which the original potencies of life shall be broken up and the directions of the evolutionary processes (*C. E.*, p. 257). Matter, again, while an obstacle to life, is also life's materials for creation. Out of matter life fashions its instruments. In order to attain to higher creations, matter is requisite as challenge and as means. When life has fashioned a form, it is limited by that which it has created. It is conscious only in so far as the embodiment it has devised will permit. Intellect develops to master the geometrical order. Matter is consequently the impediment to life and its plastic material.

Granting the existence of matter, this is intelligible. But can we refrain from asking why there is matter at all? This is crucial in Bergson's philosophy. There can be little doubt that matter is represented, on the one hand, as a product of life, of the detension of "supra-consciousness," "universal life," or the fundamental principle of reality. But why the detension? *Matter and Memory* is devoted to the mind-matter problem. It "affirms the

reality of spirit, the reality of matter." It seeks to "attenuate largely, if not to suppress, the theoretical difficulties that the dualism has always raised. . . ."[5] Either life and reality are synonymous, and matter arises from life, or life and matter are equally derivative, as conjoint manifestations of the real. The latter position, although suggested in some passages, is hardly consistent with the general tenor of this philosophy. The former position requires that the genesis of matter be accounted for. Here, as already indicated, Bergson is ambiguous. Matter, on the one hand, is the debris left by life, the current opposing life, the inverse of life. Yet matter as obstacle determines the particular streams of development. Matter is on the one hand given a certain independence, a structure and character of its own. The material order of things is the result of intelligence, but materiality is there to begin with. If things are moulded by intelligence, yet intelligence conforms to materiality.

Were Bergson to reply by stating that there is a distinction between life as prior to matter (universal life?) and living forms, and life in its developmental currents opposed by matter and utilizing it, the problem is simply pushed further back. For the arising of matter still remains unexplained.

In short, materiality on the one hand tends to be viewed as a mere negative shadow, expressing life's limitations and sinuosities. On the other hand, it tends to assume a large measure of positive character, and forms the rocks on which the wave of life breaks, defining possibilities of creation. If matter is merely the degradation of life, it is also at the very threshold of life, possessing its own lines of cleavage. It is pure inertia. But the inert nevertheless determines in part the dissociation of the immensity of potentialities which is life.[6] "Life as a whole, from its original impulsion . . . will appear as a wave which rises, and which is opposed by the descending movement of matter" (*C. E.*, p. 269). Consciousness "conquers" matter (*C. E.*, p. 267). It organizes it (*C. E.*, p. 26). But then it is there to be conquered and organized. This same difficulty reappears in the passage "from freedom to mechanical necessity by way of inversion." We are told that the "geometrical order has no need of explanation, being purely and simply the suppression of the inverse order" (*C. E.*, pp. 236–7). But must not the suppression be accounted for?

The relation of life and consciousness turns on the relation of life and matter, and the latter relation is unclear. Life and

[5] *Matière et Mémoire*, p. ii.

[6] *C. E.*, pp. 98–9; p. 258.

consciousness are neutralized and checked by materiality. Materiality neutralizes and yet seems to be just this fact of neutralization. The discussion of Quality and Quantity in *Matter and Memory* seems to imply that matter is after all just a name for the limitation of consciousness which condenses in one moment a vast series of vibrations. (Vibrations of what?) Again, we learn that there is an order inherent in materiality. It is the intellect itself (*C. E.*, p. 153). But in order that intellect might become distinct, the dissociation of the original potentialities must occur, and this dissociation is in part due to the resistance of materiality. Intellect and materiality appear together, but it is not clear how this can be explained without positing materiality to begin with.

Giving due allowance for the effect of metaphor and the varying purposes of exposition, there still seems to be a genuine difficulty involved. If matter and life appear conjointly from the real, the real is not identical with life and consciousness unless "life" has two different meanings. But if reality is life, the genesis of matter is inexplicable. If, finally, it is claimed that these difficulties arise only because we are putting in terms of intelligence that for which intuition alone is commensurate, we can only ask why such a philosophy should attempt to give the genesis of matter or to account for life's partial surrender of its right to consciousness.

Mind-Energy throws little light upon these questions. The first, second, and seventh essays are those bearing most closely on the question. The other essays deal with more limited topics and are interesting mainly as extensions of general principles. The essay on "Life and Consciousness" is concerned with the "threefold problem of consciousness, of life and their relation" (p. 3). "Theoretically . . . everything living might be conscious. *In principle,* consciousness is co-extensive with life" (p. 11). But this is not so in fact. The faculty of choice is exercised throughout the scale of animal life, but with increasing vagueness as we approach the bottom of the scale. And consciousness means choice. The question, then, is: Are all living beings conscious, or does consciousness cover a part only of the domain of life? We learn that it is "extremely likely . . . that consciousness, originally immanent in all that lives, is dormant where there is no longer spontaneous movement, and awakens when life tends to free activity" (pp. 14–15). "The variations in the intensity of our consciousness seem then to correspond to the more or less considerable sum of choice, or . . . to the amount of creation, which our conduct requires" (p. 15). "Consciousness and matter appear to

us . . . as radically different forms of existence, even as antagonistic forms . . ." (p. 17). Life finds a way of reconciling matter and consciousness, freedom and necessity. "Placed at the confluence of consciousness and matter, sensation condenses into the duration which . . . characterizes our consciousness, immense periods of what we can call by analogy the duration of things" (p. 21). ". . . Consciousness appears as a force seeking to insert itself in matter in order to . . . turn it to its profit" (p. 22). "We may surmise that these two realities, matter and consciousness, are derived from a common source. If . . . matter is the inverse of consciousness . . . neither matter nor consciousness can be explained apart from one another" (p. 23). "Things have happened just as though an immense current of consciousness, interpenetrated with potentialities of every kind, had traversed matter to draw it towards organization and make it . . . an instrument of freedom. But consciousness has had a narrow escape from being ensnared. Matter . . . bends it to its own automatism . . ." (p. 26). Matter distinguishes, resolves into individualities and personalities tendencies confused in the original impulse of life. "By the resistance matter offers and by the docility with which we endow it, [it] is at one and the same time obstacle, instrument, and stimulus" (p. 29).

The second essay, on "The Soul and the Body," contains nothing essentially new to readers of the earlier books. We are told that "the invariable contrivance of consciousness, from its most humble origin . . . is to convert physical determinism to its own ends" (p. 44). "The philosopher ought to descend within himself, and then, remounting to the surface, follow the gradual movement by which consciousness detends, extends, and prepares to evolve in space" (p. 46). This materialization or externalization means the "insertion of mind in matter." The familiar thesis concerning the function of the brain is expounded; the brain "is the organ of attention to life" (p. 59).

The essay on "Brain and Thought" aims to show that the hypothesis of psycho-physiological parallelism involves a fundamental self-contradiction. Realism and Idealism are defined as opposed notation systems, and the thesis is maintained that the hypothesis obtains its plausibility because of a "surreptitious passing from one definite notation-system to an opposite system without giving or taking notice of the substitution" (p. 234).

After the statements given above concerning the ambiguities in the relations of life, consciousness, and matter, it is hardly necessary to comment at length on these essays. In the language of the

translator, the "great factor in evolution is a kind of unconsciousness" (p. vii). "It is not an Absolute . . ." but a "restriction of the consciousness which life possesses in right, a restriction contrived by life in order to fashion the instrumentality of efficient action. . . . The philosophic problem before us today, if we accept the new concept, is to explain the nature and genesis of unconsciousness." (p. viii). But it is precisely the questions of why life foregoes this right, why it restricts consciousness, and why unconsciousness arises, that the book leaves unanswered; and these questions, moreover, arise from the doctrines laid down in the earlier books. If Bergson's statements on these and allied questions are to be not merely formulae, but the outlines of a metaphysics, these questions must be directly faced.

There is, however, a line of thought suggested here and there, and especially in the first essay of the new volume, that tempts the reader to conjecture. One wonders whether Bergson may not be led ultimately to attempt the solution of the problems discussed above by some moral or teleological principle. We may recall Fichte: the final grounds for the existence of the Non-Ego reside in the function of the Non-Ego as conditioning, and affording the opportunity for, moral development. The original *Anstosz* is otherwise unaccountable. Now is matter and unconsciousness to be accounted for by Bergson in an analogous way? Matter as obstacle and stimulus, its existence explained only by its function in forcing life to contrive unconsciousness in order that, by some sort of canalization of the vital impulse, life might attain higher levels of creation—is Bergson's philosophy drifting towards such a view? Consider these passages: "Philosophers who have speculated on the meaning of life . . . have failed to take sufficient notice of an indication which nature itself has given us. Nature warns us by a clear sign that our destination is attained. That sign is joy." Joy, as contrasted with pleasure, indicates the direction in which life is thrusting. Joy "announces that life has succeeded. . . . Wherever there is joy, there is creation; the richer the creation, the deeper the joy" (p. 29). Is this philosophy, like the symphony of Beethoven, to conclude with a Hymn to Joy? "If, then, in every domain the triumph of life is creation, must we not suppose that human life has its goal in a creation which . . . can be pursued by all men—creation of self by self, the growing of personality" (pp. 30–31)? "Automatism and repetition, which prevail everywhere except in man, should warn us that living forms are only halts. . . . The artist's standpoint is . . . not final. The standpoint of the moralist is higher. In man alone the vital movement pursues its way with-

out hindrance, thrusting through that work of art, the human body . . . the creative current of the moral life" (pp. 31–32). "(If) preservation and even intensification of personality are not only possible but even probable after the disintegration of the body, shall we not suspect that, in its passage through the matter which it finds here, consciousness is tempering itself like steel and preparing itself for a more efficient action, an intenser life" (p. 35)? Are these passages merely incidental, or are they indicative of a new stage to come in Bergson's philosophy?

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JOURNALS AND NEW BOOKS

REVUE DE MÉTAPHYSIQUE ET DE MORALE. Janvier–Mars 1921. *Jules Lachelier.* (pp. 1–20): E. BOUTROUX, and *Souvenirs d'entretiens avec Jules Lachelier.* (pp. 21–26): C. BOUGLÉ.–These two papers give a glimpse into the scope and energy of Lachelier's thought, and his finely spiritual humanism, both of which are inadequately revealed in the few pages that he published on "The nature of the syllogism," and on "The basis of induction." In these works he makes a distinction between a "logic of quantity" and a "logic of qualities." He approached metaphysics through logic and psychology, and while accepting the account of the physical sciences as true of a certain aspect of existence, he finds their categories inadequate to describe "necessary being" itself. He thought, "In the last analysis that which is important for a philosopher to understand is that reality is reason." *Les facteurs kantiens de la philosophie allemande de la fin du XVIII^e^ et du commencement du XIX^e^ siècles* (pp. 27–47) (*Continuée et à suivre*): VICTOR DELBOS.–This is the third of an interesting series of articles on this subject, and describes the relations of Schelling and Hegel to Kantianism. *Études Critiques. A propos de l'évolution de la pensée juridique contemporaine.* (pp. 49–75): G. DAVY.–Contrasts two views as to the function of the judiciary in the development of law. F. Gény, in his theory, has sought to preserve the traditional absolutism of the statute law. Judges are merely "to complete the statute" by interpreting customs in the light of it. Lambert, Saleilles, and others take a more radical position and regard the judiciary as a "supplementary source of law." In fulfilling this function, judges not only interpret, but also constitute custom. Each of these two factions finds the

other " in danger of subjectivism." The author of the article inclines toward the second, the more radical view of Lambert and Saleilles. *Questions pratiques. Faut-il reviser la Constitution?* (pp. 77–98): A. BERTHOD.–A vigorous attack upon the notion that French social problems can be solved through tinkering with the Constitution in the spirit of traditional and political ideas. The author's criticism is directed especially against proposals to increase the power of the President, and make the executive more independent of the legislature. He closes with a prophecy of future political development in the direction of syndicalism. " Syndicalism is the great organic force of the future." *Variétés. Le Meeting d'Oxford.* (pp. 99–134): R. LENOIR.–A rather full account of the Oxford Philosophic Congress of 1920, attempting especially to delineate the characteristics of present-day philosophizing in the various countries, and the consequent values of international cooperation in philosophy. *Supplément. Livres Nouveaux.*

Bridges, James Winfred. An Outline of Abnormal Psychology. Second edition, revised. Columbus, Ohio: R. G. Adams Co. 1921. Pp. 226.

Conybeare, Frederick C. Russian Dissenters. Harvard Theological Studies, No. X. Cambridge, Mass.: Harvard University Press. 1921. Pp. 370.

NOTES AND NEWS

Professor Alfred E. Zimmern, formerly Fellow and Tutor at New College, Oxford, lectured at Columbia University, November 3, on "Greek Political Thought in Relation to Modern Problems."

A special faculty research committee has been appointed at Oberlin College to cooperate with the National Research Council. The chairman is Professor S. R. Williams, head of the department of physics, and the other members of the committee are from the departments of chemistry, mathematics, sociology, psychology and geology.

The death is announced of Emile Houzé, professor of anthropology at the University of Brussels and at the Ecole d'Anthropologie of that city.